

Applicant : Richard F Selden et al.
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Attorney's Docket No.: 10278-022001 / 0020 (98-6 CIP)

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A synthetic nucleic acid sequence that encodes human α -galactosidase, wherein at least one non-common codon or less-common codon has been replaced by a common codon and wherein the synthetic nucleic acid has one or more of the following properties:
 - it has a continuous stretch of at least 150 codons all of which are common codons;
 - it has a continuous stretch of common codons, which continuous stretch comprises at least ~~33%~~ 60% of the codons of the synthetic nucleic acid sequence;
 - at least 94% of the codons in the sequence encoding the protein are common codons, wherein by a common codon is meant Ala (gcc); Arg (cgc); Asn (aac); Asp (gac); Cys (tgc); Gln (cag); Gly (ggc); His (cac); Ile (atc); Leu (ctg); Lys (aag); Pro (ccc); Phe (ttc); Ser (agc); Thr (acc); Tyr (tac); Glu (gag); Val (gtg), Met (atg) and Trp (tgg).
2. (Original) The synthetic nucleic acid sequence of claim 1, where the α -galactosidase nucleic acid is inserted into a non-transformed cell.
3. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein the number of non- common or less- common codons remaining is less than 15.
4. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein the number of non- common or less- common codons remaining, taken together, are equal or less than 6% of the codons in the synthetic nucleic acid sequence.
5. (Original) The synthetic nucleic acid sequence of claim 1, wherein all non-common or less-common codons are replaced with common codons.

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6. (Original) The synthetic nucleic acid sequence of claim 1, wherein at least 96% of the codons in the synthetic nucleic acid sequence are common codons.
7. (Original) The synthetic nucleic acid sequence of claim 1, wherein at least 98% of the codons in the synthetic nucleic acid sequence are common codons.
8. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein all the codons of the synthetic nucleic acid sequence are common codons.
9. (Original) A vector comprising the synthetic nucleic acid sequence of claim 1.
10. (Original) A cell comprising the nucleic acid sequence of claim 1.
11. (Original) A method of producing α -galactosidase comprising culturing the cell of claim 10 under conditions in which the nucleic acid is expressed.
12. (Currently Amended) A method for preparing a synthetic nucleic acid sequence encoding human α -galactosidase, comprising:
 - identifying a non-common codon and a less-common codon in a non-optimized gene sequence which encodes an α -galactosidase protein; and
 - replacing at least 94% of the non-common and less-common codons with a common codon encoding the same amino acid as the replaced codon,
 - wherein by a common codon is meant: Ala (gcc); Arg (cgc); Asn (aac); Asp (gac); Cys (tgc); Gln (cag); Gly (ggc); His (cac); Ile (atc); Leu (ctg); Lys (aag); Pro (ccc); Phe (ttc); Ser (agc); Thr (acc); Tyr (tac); Glu (gag); Val (gtg), Met (atg) and Trp (tgg).
13. (Original) The method of claim 12, wherein at least 96% of the non-common and less-common codons are replaced with a common codon encoding the same amino acid as the replaced codon.

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14. (Original) The method of claim 12, wherein at least 98% of the non-common and less-common codons are replaced with a common codon encoding the same amino acid as the replaced codon.

15-25. (Canceled)

26. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein the nucleic acid has a continuous stretch of at least 200 common codons.

27. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein the nucleic acid has a continuous stretch of at least 250 common codons.

28. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein the nucleic acid has a continuous stretch of at least 300 common codons.

29. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein the nucleic acid has a continuous stretch of common codons, which continuous stretch comprises at least 70% of the codons of the synthetic nucleic acid sequence.

30. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein the nucleic acid has a continuous stretch of common codons, which continuous stretch comprises at least 80% of the codons of the synthetic nucleic acid sequence.

31. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein the nucleic acid has a continuous stretch of common codons, which continuous stretch comprises at least 90% of the codons of the synthetic nucleic acid sequence.

32. (Previously Presented) The synthetic nucleic acid sequence of claim 1, wherein the nucleic acid has a continuous stretch of common codons, which continuous stretch comprises at least 95 % of the codons of the synthetic nucleic acid sequence.